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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,921	03/31/2004	Po-Hung Yau	BHT-3111-444	5691

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BRUCE H. TROXELL  
SUITE 1404  
5205 LEESBURG PIKE  
FALLS CHURCH, VA 22041

EXAMINER

ORTIZ, EDGARDO

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 05/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/812,921	<b>Applicant(s)</b> YAU ET AL.	
	<b>Examiner</b> Edgardo Ortiz	<b>Art Unit</b> 2815	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Objections*

1. Claims 1, 8 and 15 objected to because of the following informalities: The claims include the limitation “a main light emitting surface *served as a light source*”, however, it is suggested that the limitation be changed to “a main light emitting surface *providing a light source*”. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Chen (U.S. Patent No. 6,610,598). With regard to Claim 1, Chen discloses a surface-mounted device of light emitting diode, comprising:

a substrate (1);

a package material (5);

a light-emitting diode chip (3) disposed on the substrate, having a main light-emitting surface providing a light-source (column 2, lines 11-16); and

a planar optical modulation unit (6A) comprising a lens and having a plane appearance under the naked eye (column 3, lines 26-28) disposed on the package material, so that the planar

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optical modulation unit (6A) is above the main light-emitting surface, and utilized for modulating the optical phase of the light source (column 2, lines 11-21). See also figures 6-8.

With regard to Claims 2 and 3, Chen discloses a package material (5) made from a transparent resin and polymer material (epoxy) (column 2, line 19).

With regard to Claim 5, Chen discloses, in another embodiment, a planar optical modulation unit (6D), which performs a diffractive optical phase modulation (column 3, lines 44-49). See figures 12 and 13.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 8-10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (U.S. Patent No. 6,610,598). With regard to Claims 8-10 and 12, Chen essentially discloses the claimed invention, but fails to disclose the claimed light-emitting chip and planar optical modulation unit provided in plurality. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include the claimed light-emitting chip and planar optical modulation unit provided in plurality, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art.

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St. Regis Paper Co. v. Bemis Co., 193 USPQ 8. In the instant case, such a duplication of the claimed elements would enhance the integration of LED structures in a single package material.

4. Claims 4, 6, 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (U.S. Patent No. 6,610,598) in view of Chen et al. (United States Patent Application Publication US2004/0203189). With regard to Claims 4, 6, 11 and 13, Chen essentially discloses the claimed invention but fails to disclose that the claimed planar optical modulation unit consists of a Fresnel lens structure and performs a refractive optical phase modulation.

However, Chen et al. discloses a LED power package including a contoured refractive surface (660), wherein the contoured refractive surface (660) comprises a Fresnel lens (paragraph 0051, lines 15-18). See figure 8.

Therefore, it would have been obvious to someone with ordinary skill in the art, at the time of the invention, to modify the structure as disclosed by Chen to include the claimed planar optical modulation unit consisting of a Fresnel lens structure and performing a refractive optical phase modulation, as suggested by Chen et al., in order to provide a selected light-refraction effect (paragraph 0051, lines 1-4).

5. Claims 7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (U.S. Patent No. 6,610,598) in view of Lea (U.S. Patent No. 5,543,830). With regard to Claims 7 and 14, Chen essentially discloses the claimed invention but fails to disclose that the claimed planar optical modulation unit consists of a lens structure with a gradient-refractive index.

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However, Lea discloses a structure including LED's covered with a silicone resin and micro-lenses formed on the silicone resin, wherein the micro-lenses comprise gradient index lenses (column 6, lines 17-24 and figures 6 and 7).

Therefore, it would have been obvious to someone with ordinary skill in the art, at the time of the invention, to modify the structure as disclosed by Chen to include the claimed planar optical modulation unit consisting of a lens structure with a gradient-refractive index, as suggested by Lea, in order to provide micro-lenses which are art-recognized equivalents for lenses such as Fresnel lenses, which as stated above, provide a selected light-refraction effect.

6. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (U.S. Patent No. 6,610,598) in view of Stokes et al. (U.S. Patent No. 6,791,259). With regard to Claim 15, Chen discloses a substrate (1), a light-emitting diode chip (3) disposed on the substrate, having a main light-emitting surface providing a light-source (column 2, lines 11-16) and a package material (5) disposed on the main light-emitting surface of the chip. See figures 6-8.

Chen fails to disclose that the claimed package material is doped with a plurality of scattering particles for scattering light beams from the light source. However, Stokes discloses a solid-state illumination system, including an LED chip (53) and an encapsulation layer (156) formed over the LED chip (53), wherein the encapsulation layer (156) may comprise light scattering particles in a polymer layer over the LED chip (53) (column 8, lines 16-20 and figure 7).

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Therefore, it would have been obvious to someone with ordinary skill in the art, at the time of the invention, to modify the structure as disclosed by Chen to include the claimed package material doped with a plurality of scattering particles for scattering light beams from the light source, as suggested by Lea, in order to provide radiation particles which reduce the penumbra effect (column 5, lines 8-10).

With regard to Claims 16 and 17, Chen discloses a package material (5) made from a transparent resin and polymer material (epoxy) (column 2, line 19).

### *Conclusion*

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edgardo Ortiz whose telephone number is 571-272-1735. The examiner can normally be reached on Monday-Friday (1st Friday Off).

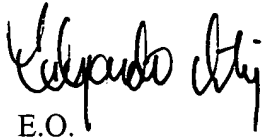
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 571-272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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**GEORGE ECKERT**  
**PRIMARY EXAMINER**